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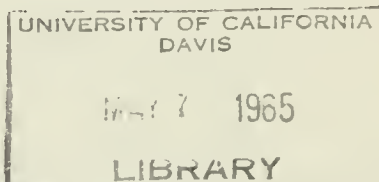






State of California  
THE RESOURCES AGENCY  
Department of Water Resources

BULLETIN No. 119-19



FEASIBILITY OF SERVING  
THE CRESTLINE-LAKE ARROWHEAD  
WATER AGENCY AREA  
FROM THE STATE WATER PROJECT

FEBRUARY 1965

HUGO FISHER  
*Administrator*  
The Resources Agency

EDMUND G. BROWN  
*Governor*  
State of California

WILLIAM E. WARNE  
*Director*  
Department of Water Resources



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## FOREWORD

In November 1960 the California Water Resources Development Bond Act was approved by the State's electorate, paving the way for the construction of the State Water Project as the first phase of the California Water Plan. The Department of Water Resources was subsequently asked by representatives of the Crestline-Lake Arrowhead area to consider the area as a potential contractor for water from the State Water Project.

A preliminary investigation of the Crestline-Lake Arrowhead area was conducted by the Department and the results published in 1961 as a "Report on Feasibility of Serving the Crestline-Lake Arrowhead Area from the State Water Facilities". This report recommended that the persons residing in the investigational area undertake to either annex the area to a water district having the necessary operative powers to import and distribute water or to form an overall water agency that would have these powers, and that this agency then negotiate with the State for a water supply contract.

The Crestline-Lake Arrowhead Water Agency was created by the California State Legislature in 1962 and entered into a water supply contract with the State of California on June 22, 1963.

Prior to executing contracts for water service with water agencies, the Department of Water Resources makes studies of those agencies and the areas encompassed by them in order to evaluate each area's future demand for supplemental water supplies, the legal right of each agency to enter into such a contract, the engineering feasibility and economic justification of providing such service, and the financial ability of each agency and its constituent area to meet the financial requirement which would be imposed upon it by a water service contract with the State.

The results of these studies along with significant incidental and supporting material have been embodied in separate bulletins published by the Department of Water Resources. This bulletin, which contains data used in negotiating the contract between the State and the Crestline-Lake Arrowhead Water Agency, is an updating of the Department's 1961 report. It is one of a series of such publications by the Department which, when complete will, together with other departmental reports dealing with potential contracting agencies, cover all the areas in the State that have entered into contracts with the State of California for supplemental water supplies from the State Water Project.

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## APPENDIX B

Credit Analysis of the Crestline-Lake Arrowhead Water Agency

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The Resources Agency  
DEPARTMENT OF WATER RESOURCES

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## CHAPTER I. INTRODUCTION

The Crestline-Lake Arrowhead Water Agency has recently executed a contract with the State of California for a water supply from the State Water Project. This contract is the result of negotiations between the Agency and the Department of Water Resources, based on data originally presented in a preliminary feasibility report prepared by the Department in September 1961. The data presented in the preliminary report have been revised in accordance with the findings of a later, more detailed investigation of the Agency and are presented in this report.

At the present time, an area surrounding Lake Arrowhead is excluded from the Crestline-Lake Arrowhead Water Agency. This area, comprising about 4,760 acres, is served by the Arrowhead Utility Company. The excluded area is expected to become a part of the Agency in the future; therefore, these lands were incorporated into this report for analysis. For purposes of identification, this unit has been designated as the "Arrowhead Excluded Area". The data in this report will be presented for the Crestline-Lake Arrowhead area as a whole and, where pertinent, for its two component parts, the Crestline-Lake Arrowhead Water Agency and the Arrowhead Excluded Area.

### Purpose and Scope of the Report

The purpose of this report is to present the essential background data that contributed to the evaluation of the feasibility of providing supplemental water to the Crestline-Lake Arrowhead Water Agency from the State Water Project. The report includes a review of the historical development of the area, its recent economic development and future economic potential, estimates of the area's future water needs, and a schedule of the probable costs of serving the area with water from the State Water Project.

The report also evaluates the economic and financial aspects of supplying water to the Agency's area from the State Water Project.

The Department of Water Resources published a report on the Crestline-Lake Arrowhead area in September 1961. In May 1963, Albert A. Webb Associates, of Riverside, California, consulting engineers for the Crestline-Lake Arrowhead Water Agency, published a report analyzing the Agency's imported water requirements and its ability to pay for imported water supplies. The consulting engineers' report concurred with the 1961 Department report's estimates and projections of population and generally substantiated its conclusions. This present report reviews and enlarges upon the data provided in the 1961 report, and utilizes the two and a half years which have passed since its publication to check the previously made projections of population, assessed valuation, and growth of the economy.

On February 7, 1964, seven months after the water supply contract with the Crestline-Lake Arrowhead Water Agency was signed, the Agency transmitted a resolution to the Department expressing a desire to exercise its option for a maximum annual entitlement of 800 acre-feet of additional water under Article 8 of its water supply contract. After analyzing the Agency's request, the Department determined that the Agency could put this additional water to beneficial use prior to 1990 and that the Agency had the financial ability to pay for this added water. A copy of this analysis is presented in Appendix A of this report. On September 28, 1964, the Agency's contract was amended to provide a total maximum annual entitlement of 5,800 acre-feet.

#### Description of the Crestline-Lake Arrowhead Area

The Crestline-Lake Arrowhead area is located in the San Bernardino Mountains about ten miles north of the City of San Bernardino, at an elevation

extending from about 1,500 feet to about 5,700 feet above the City, as shown on Plate No. 1, "Location Map".

The total area included in this study is about 50,500 acres. The Crestline-Lake Arrowhead Water Agency includes about 45,700 acres, and the Arrowhead Excluded Area comprises 4,800 acres. Mountainous, ranging in elevation from about 2,600 to over 7,000 feet, the area is generally timbered with pines and cedars. It lies predominantly in the Mojave River drainage area.

Most of the development in the Crestline-Lake Arrowhead area has taken place at an elevation of 5,000 feet and above. Elevation has a marked influence on temperature as can be seen by comparing average daily temperatures for Lake Arrowhead and the City of San Bernardino. Average daily temperatures at Lake Arrowhead for July, the hottest month, are a high of 83°F. and a low of 56°F. while January, the coldest month, has an average high of 48°F. and a low of 26°F. San Bernardino City has a July average high of 96°F. which is 13°F. higher than the average at Lake Arrowhead, 4,000 feet higher in elevation.

The average yearly precipitation of the Crestline-Lake Arrowhead area generally runs between 30 and 45 inches. Some slopes receive much more, but some of the leeward slopes much less. Lake Arrowhead has an average of 42.5 inches of precipitation a year.\* Like Southern California generally, most of the precipitation is concentrated in the winter months. However, unlike the lowlands, the mountains do receive some summer precipitation, though its total amount is relatively minor.

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\*U. S. Weather Bureau average, to 1952.

### History of the Area

The San Bernardino Mountain region in which the Crestline-Lake Arrowhead area is located was virtually uninhabited before California became a state in 1850. Shortly after California achieved statehood, Congress established a board of land commissioners to segregate public domain from privately-owned land. The greater part of what is now San Bernardino County and all of the Crestline-Lake Arrowhead area remained public domain.

In 1851, a company of nearly 500 Mormons crossed from Salt Lake City to establish a colony in the San Bernardino Valley. Buying Rancho San Bernardino, 35,509.41 acres, they laid out a mile-square town, built a stockade for protection against Indian attack, seeded fields, started a grist mill, and built a logging road up Waterman Canyon to the crest of the San Bernardino Mountains. Several sawmills were put in operation, and by 1854 the San Bernardino Mountains were Southern California's source of good lumber.

To supply irrigation water for the growing farms and orchards in the San Bernardino Valley, the Big Bear Valley Land and Water Company constructed a masonry dam across the head of Big Bear Valley in 1884, creating the first, and largest, man-made reservoir in the mountains. In 1891 a group of Ohio investors set in motion plans to impound the waters draining into Little Bear Valley as part of a great irrigation project. The dam was completed in 1907, creating the lake now called Arrowhead.

Summer camping in the forests and highland valleys of the San Bernardino Mountains had been a popular way to escape the valley heat for many years. Here and there, summer cabins made their appearance and the recreational development of the mountains was further stimulated by the opening of the "101-Mile Rim of the World" highway in 1915.



In 1921 a Los Angeles syndicate purchased Little Bear Valley and incorporating as the Arrowhead Lake Company, built Arrowhead Village, a lodge, various sports facilities, and completed further work on the dam, enlarging the lake to some 780 acres.

In September 1925, a new lake was formed by the completion of a multiple arch dam on Green Valley Creek, which is at the eastern end of the Crestline-Lake Arrowhead Water Agency area. While only 22 acres in extent, it formed another recreational nucleus. Being at almost 7,000 feet elevation, the Green Valley Lake area developed into a winter sports center, part of the transformation which has made this whole area a part of one of the largest winter sports centers on the West Coast.

In 1946 the Los Angeles Turf Club bought Lake Arrowhead and surrounding property and continued to develop the area, as the postwar Southern California boom brought increasing activity to the whole stretch of mountains. Construction of another high gear road up the mountains along City Creek, coupled with increasing population, brought more and more people into the area. By 1960 almost eight million\* recreational trips were made into the San Bernardino Mountains, a large portion of them to the Crestline-Lake Arrowhead area. This surge of visitor activity has been accompanied by a steady growth in the permanent population of the area. From approximately 2,200 in 1945, population in the Crestline-Lake Arrowhead area increased to 3,900 in 1950, and 6,700 in 1960. The present permanent population is estimated to exceed 7,750 persons.

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\*U. S. Forestry Service estimate (7,710,000).

### Land Classification and Land Use

The Crestline-Lake Arrowhead area contains about 22,050 acres of privately-owned lands, which embrace most of the private land within San Bernardino National Forest between Cedarripines Park on the west to Green Valley on the east. The area around Lake Arrowhead presently excluded from the Agency service area is all privately owned, including Lake Arrowhead itself. A breakdown between the publicly and privately-owned lands is shown in Table 1 and on Plate 3.

TABLE 1

#### PRESENT PUBLIC AND PRIVATE LAND OWNERSHIP

Area	: Publicly-owned : (acres)	: Private : (acres)	: Total : (acres)
Crestline-Lake Arrowhead Water Agency	28,510	17,250	45,760
Excluded area	<u>0</u>	<u>4,800<sup>a</sup></u>	<u>4,800<sup>a</sup></u>
Total	<u>28,510</u>	<u>22,050</u>	<u>50,560</u>

- a. Including approximately 40 acres just off Calif. Highway 18 in the southwest of the Agency excluded by Resolution No. 9 of the Board of Directors of the Crestline-Lake Arrowhead Water Agency.

With the exception of the Big Bear area, almost all of the urban development in the San Bernardino Mountains has taken place within this area. There are presently some dozen more or less urbanized communities located within the Crestline-Lake Arrowhead area, including the centers of Crestline, Lake Gregory, Rim Forest, Running Springs, Green Valley, and Lake Arrowhead.

The Department of Water Resources made a land use survey of the area in 1961, delineating urban land use as tabulated in Table 2.

TABLE 2

URBAN LAND USE, CRESTLINE-LAKE ARROWHEAD AREA, 1961  
(in acres)

Type of use	: Public lands	: Private lands	: Total
Urban residential	110	1,120	1,230
Recreational residential <sup>a</sup>	420	1,940	2,360
Commercial	40	110	150
Schools	20 <sup>b</sup>	-	20
Paved areas	-	25	25
Unpaved parking, etc.	-	25	25

a. Summer home, camp and trailer sites.

b. Not national forest lands.

In addition, approximately 85 acres were in agricultural use.

Within the Arrowhead Excluded Area, none of which is national forest land, the following urban land use was noted.

TABLE 3

URBAN LAND USE, ARROWHEAD EXCLUDED AREA, 1961

Type of Use	: Acres
Urban residential	540
Recreational residential (summer home, camp and trailer sites)	60
Commercial	45
Paved areas	5

An additional eight hundred and ten acres were covered by Lake Arrowhead and Grass Valley Lake.

### Restrictions on Future Development

The availability of local water supplies could well be a limiting factor to the growth of the Crestline-Lake Arrowhead area. The requirements of an expanding economy and population have been met for many years by drilling new wells, but a practical limit is being approached in the development of ground water supplies by this method. Most areas are presently experiencing decreased flows from wells and, in many cases, wells are going dry. It is evident that, without supplemental water supplies, recreational use and population growth in the future will be severely hampered.

The availability of land does not appear to offer an immediate restriction to future development. Although less than 43 percent of the area is privately owned, only 20 percent of it is developed. Continuing demand for recreational opportunities as well as an expanding permanent population will bring more of this land under development. In addition, the United States Forest Service is committed to developing, for recreational usage, much of the public lands which are not now available for such use. Less than 3 percent of the public land has been developed.

Full development and utilization of much of the public land will require the opening up of areas now under fire closure. It will be necessary to intensify fire control measures for these areas. This could very well require supplemental water supplies.

Some of the public land is under fairly long term lease for cabin sites and commercial usage. Over 700 summer homes, five organization camps, and 13 special use tracts are now on national forest land.

The U. S. Forest Service is following a policy of maximum utilization by not renewing leases where there is a possibility of, and a demand for, more intensive public use of the land. Those areas which are not suitable for public development are to be exchanged for private lands elsewhere in the San Bernardino National Forest.



### Description of Crestline-Lake Arrowhead Water Agency

The Crestline-Lake Arrowhead Water Agency was created in 1962 by a special law enacted by the California Legislature (California Statutes 1st Extraordinary Session 1962, Chapter 40; Deering's Uncodified Acts No. 9099a). The Agency began operating after an election in which the majority of the voters in the Agency area voted for the Agency to begin to function and exercise its powers as provided in the Act.

### General Powers

The Agency has the power to acquire water rights and to construct or otherwise acquire water storage and conveyance facilities (Section 11, Subd. 5 -- unless otherwise indicated, all references are to the Crestline-Lake Arrowhead Water Agency Act), and appurtenant recreational (Section 11, Subd. 12) and hydroelectric works (Section 25). The Agency may sell water both to individuals and to public and private agencies (Section 11, Subd. 7 and 8).

The Agency is governed by a five-man Board of Directors with each Director elected from a Division of the Agency (Section 2.7). All registered voters residing with the Agency may vote in Agency elections (Section 4). Improvement districts can be formed of a portion of the Agency to bear the cost of works benefiting only that portion (Sections 19-21).

### Fiscal Powers and Ability to Contract with State

The Board of Directors is required, so far as practicable, to fix water rates sufficient to cover all the Agency's expenses (Section 27). The Board may also levy taxes to raise necessary funds (Section 11, Subd. 12; Sections 28, 29, 44). General obligation bonds, for the whole Agency or for an improvement district only, may be issued with the approval of two-thirds

of the voters in the Agency or the improvement district (Sections 18, 19, 22). Such bonds are limited to a maximum term of 40 years and a maximum interest rate of 5 percent per year. (Section 22). The Agency may also issue revenue bonds with the approval of a majority of the voters. (Section 11, Subd. 23; see also Government Code Section 54386.) The Agency may issue general obligation promissory notes with a term of up to 3 years and a yearly interest rate of up to 6 percent. (Section 11, Subd. 11). The amount of such notes outstanding at any time may be at least \$75,000 but not more than \$500,000 or 2 percent of the Agency's assessed valuation.

The Agency is empowered by its organic act to contract to acquire property, including water. (Section 11, Subds. 4, 5); to contract and do other acts necessary for the full exercise of its powers (Section 11, Subd. 15); and to contract with any persons, private corporations, or public agencies (including a Department of the State of California) for the purpose of carrying out any of the powers of the Agency (Section 11, Subd. 19). In addition, the Agency is specifically empowered by the Central Valley Project Act to contract with the Department of Water Resources for a water supply (see Water Code Sections 11102, 11625, and 11661).

## CHAPTER II.   PRESENT AND FUTURE DEVELOPMENT OF THE ECONOMY

The Crestline-Lake Arrowhead area is a recreational appendage of the Southern California urban agglomeration centering on Los Angeles. The basic economy of the area has long been largely predicated on its attraction as a mountain recreation area which draws visitors from Los Angeles, Orange, Riverside, and San Bernardino Counties. The economy of the area is now based almost exclusively on these recreational features and nearly all income producing activities stem from this attraction.

### Patterns of Future Development

While the overall pattern of week-end vacation cabins and a seasonal recreational economy will undoubtedly continue into the future, there will be changes in the pattern of development. A continuing rapid population growth in Southern California generally, and the Counties of Los Angeles, Orange, Riverside, and San Bernardino specifically, will produce greatly increased pressure on the recreational resources of the area. This pressure will result in increased development and use of the land in the Crestline-Lake Arrowhead area. Also, when Cedar Springs Reservoir, a part of the State Water Project, is completed, it will provide an additional recreational feature. The considerable increase of tourists resulting from population growth in Southern California, and further recreational development will germinate a substantial growth in that major segment of the area's permanent population which is economically based on providing commercial facilities for visitors.

The magnitude of potential demand for the recreational facilities of this area is strikingly apparent in the projected population growth in the four Counties of Los Angeles, Orange, Riverside, and San Bernardino.

Population for the four has been estimated to be between 13 and 14 million in 1980, up from just over 7-1/2 million in 1960.\*

In addition to the population based on recreational services, a substantial number of the future residents of this area may be expected to commute to the City of San Bernardino and its environs for their daily employment. A considerable amount of this commuting population will be seasonal, with families occupying their own or rental units during the hot summer, school vacation months, and returning to the valley during the winter. This pattern is already apparent, with the small group of year-round commuters from Crestline and adjacent areas being materially augmented during the summer months.

Another segment of the permanent population will consist of retired persons. Many of these too will be seasonal residents, departing during colder months. Some, however, will be year-round residents. There is at present a small group of retired or semi-retired persons residing in the area.

#### Population

The permanent population of the Crestline-Lake Arrowhead area has increased from about 2,200 persons in 1945 to an estimated 7,750 in February 1964. This population estimate differs significantly from that in the San Bernardino County Planning Commission quarterly bulletin which estimates the population for the Crest Forest Census Tract as 4,680 in

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\*Department of Finance (February 1963) projects a 1980 population of 13,077,300; Department of Water Resources (Bulletin No. 78, Appendix D, 1960) a population of 13,620,000 in 1980; Los Angeles Regional Transportation Study (January 1964) projects a population of 14,300,000 for 1980.

October 1963. This census tract takes in somewhat more than the Crestline-Lake Arrowhead area being investigated, but the addition is largely unpopulated. The Department's 1960 population estimate of 6,700 likewise differs substantially from the 4,345 persons reported by the U. S. Census Bureau for the same year. The Department's estimates are based on known figures of voter registration and pupil enrollment, which alone account for nearly the total estimated by the census in 1960 and the San Bernardino County Planning Commission in October 1963, and estimates of nonregistered voters, nonschool minors, and others. The bases for the Department's estimates of 1960 and 1964 population, by classification, in the Crestline-Lake Arrowhead area are as follows:

TABLE 4

1960 POPULATION ESTIMATE  
(middle of year)

Class	:	Number of persons
Registered voters, actual count		3,118
Pupil enrollment, actual count		<u>1,152</u>
Subtotal		4,270
Nonregistered voters, estimated		1,679
Preschool children, age 0-5, estimated		515
Post-school minors, age 18-21, estimated		201
All others, estimated		<u>35</u>
Subtotal		<u>2,430</u>
Total		<u><u>6,700</u></u>



TABLE 5

1964 POPULATION ESTIMATE  
(beginning of year)

Class	:	Number of persons
Registered voters, actual count		3,403 <sup>a</sup>
Pupil enrollment, actual count		<u>1,531</u>
Subtotal		4,934
Nonregistered voters, estimated		1,833
Preschool children, age 0-5, estimated		676
Post-school minors, age 18-21, estimated		265
All others, estimated		<u>42</u>
Subtotal		<u>2,816</u>
Total		<u><u>7,750</u></u>

a. Adjusted so as to be comparable to 1960 data which were gathered during a different month.

The above estimates were made when it became apparent that the U. S. Census and the County Planning Commission estimates, which are a buildup on 1960 census counts, were short of the true population of the area. The failure of the census to completely enumerate an area of this type is understandable when the extreme difficulty of contacting all the residents by the individual enumerator is considered.

The 1964 estimate in the above table is for the beginning of the year while historical and projected population estimates are for the middle of the year in question. By projecting the current short term growth rate to the middle of 1964, a time comparable estimate of 7,900 total population for the Crestline-Lake Arrowhead area is obtained.

Estimates of future population utilized the projections made for Southern California by this Department and reported in Bulletin No. 78, Appendix D, "Economic Demand for Imported Water" as well as data developed in the four years subsequent to the publication of Bulletin No. 78.

Department estimates of the historical and future permanent population for the Crestline-Lake Arrowhead area as a whole are as follows:

TABLE 6

POPULATION OF THE CRESTLINE-LAKE ARROWHEAD AREA

Year	:	Population
1945		2,200
1950		3,900
1955		4,500
1960		6,700
1964		7,900
1970		11,300
1980		20,000
1990		32,000

The Department has also made current and projected population estimates for the Arrowhead Excluded Area. Like the estimates for the entire area, the historical figures are higher than census counts as reflected in enumeration district figures and San Bernardino County Planning Department figures. This is in line with actual voter registration for the Arrowhead Excluded Area which reflects a low count by the census.

TABLE 7

## POPULATION OF THE ARROWHEAD EXCLUDED AREA

Year	:	Population
1950		500
1960		900
1964		1,100
1970		1,600
1980		2,700
1990		4,100

Present and Future Land Use

An analysis of Tables 1, 2, and 3 indicates that some 3,800 acres in the Crestline-Lake Arrowhead area were in urban and semiurban development in 1961. In addition, about 925 acres were occupied by the surface lakes of the area, approximately 85 acres of land were in agricultural usage, and an 185-acre golf course was being developed. Possibly an additional 200 acres were being utilized as mountain roads outside of the developed areas. In total, then, approximately 5,200 acres, or ten percent of the total land in the Crestline-Lake Arrowhead area, was developed in 1961.

While much of the government-held national forest land will continue to be developed into recreational facilities such as picnic areas and campgrounds, virtually all the projected 1990 population of 32,000 is expected to reside on private lands. By 1990, most of the readily accessible private lands will be developed for urban purposes; however, overall densities will remain low.



The United States Forest Service's "San Bernardino National Forest Multiple Use Management Plan, Arrowhead Ranger District", published in May, 1961, served as the guide in making future estimates of government land use. This plan is now in the process of being updated but it was assumed that the overall objectives and policy, as well as the major specifics of the original plan, are not a subject of change. One of the objectives of the plan is to reduce or eliminate private and public land conflicts. Much of this may be done by the exchange of National Forest lands which are not suitable for public recreational development for islands of private land.

No irrigated agriculture or industrial development has been projected for the Crestline-Lake Arrowhead area. It is expected that the land will be devoted to residential and recreational use, with some lands used for commercial development. Since these commercial establishments will serve the seasonal and week-end visitor, as well as the permanent population, the area devoted to commercial usage will be considerably larger than would be expected from the size of the resident population. If there is any development in light manufacturing it will be very minor and is not expected to influence the growth of the area.

The continued rise in income levels throughout Southern California, as well as the general population growth, has been reflected in an expanding demand for week-end cabins. This demand, assuming continued economic as well as population growth, should continue. It is particularly apparent in the Arrowhead Excluded Area where a considerable number of elaborate and expensive mountain homes are being built.



### CHAPTER III. DEMAND FOR PROJECT WATER

The Crestline-Lake Arrowhead area is primarily a recreational area with the permanent population presently accounting for about 60 percent of the total water consumption. Water use is primarily domestic, with smaller demands for commercial purposes.

#### Values of Water Use

In 1961 the Department of Water Resources estimated the apparent unit water use for the Crestline-Lake Arrowhead area at 85 to 90 gallons per day per capita on the basis of the permanent resident population. This figure also included water used by visitors, vacationers, and seasonal residents. Water use by the permanent residents was estimated at approximately 50 to 60 gallons per capita per day. An analysis of certain factors which affect unit water use to a major extent indicates that this low per capita consumption is to be expected. Water use decreases with a decrease in mean annual temperature, outdoor water use decreases with increasing mean annual precipitation, and water use increases as the number of water using appliances and extent of lawns and shrubs increase.

Urban water use in the Crestline-Lake Arrowhead area is confined largely to indoor water use as there are few plantings of lawns, shrubs or flower gardens. Automatic dishwashers and garbage disposals are installed in only a relatively few dwelling units though their use is increasing. The average annual temperature is about 12.6°F. lower than in the City of San Bernardino; therefore, air conditioning systems are not needed even during the midsummer months. There are no industrial developments and the commercial establishments tend to be modest in size. Thus, the low water use values of the area are understandable.

While present development indicates a slight increase in water-using appliances, no large scale planting of lawns or ornamental shrubs is expected. Topographical restrictions and limited water supplies will probably limit golf-course development within the Crestline-Lake Arrowhead area to the existing course surrounding Grass Valley Lake until project water becomes available after 1972. At that time it is possible that one of the large, presently undeveloped privately held parcels of land east and south of Lake Arrowhead may be developed into a golf course. Throughout the area there is expected to be a significant increase in the development of week-end and summer homes which will receive considerable use and therefore require substantial supplies of water.

Estimates of unit values of water use by ten-year intervals up to 1990 for the Crestline-Lake Arrowhead area as an entity are shown in Table 8. Since local water supplies are essentially fully developed, consumption will be limited by supply until State Water Project deliveries in 1970. This limitation is reflected in water use figures for 1970. It may be necessary to adopt some sort of inverse rate structure to limit water consumption in the years immediately before State Water Project water becomes available.

TABLE 8

ESTIMATED UNIT VALUES OF WATER USE  
CRESTLINE-LAKE ARROWHEAD AREA  
1960-1990

Year	Gallons per capita, per day	Acre-feet per capita, per year
1960	85	.095
1970	80 <sup>a</sup>	.089
1980	125	.141
1990	160	.179

a. Limited by local supply available.

There is considerable variation in per capita water consumption within the Crestline-Lake Arrowhead area as a whole, and these differences are likely to continue. The area served by the Arrowhead Utility Company, which is essentially the same as the Arrowhead Excluded Area, has historically had an extremely high per capita rate of consumption. In 1960, water consumption was about 290 gallons per permanent resident per day. While this decreased slightly in 1961, it has since exceeded 300 gallons per capita per day.

The nature of the development in the Arrowhead Excluded Area naturally leads to high water consumption when it is measured in terms of permanent residents. The type of housing units, generally larger and with more water consuming appliances than the average unit in the Crestline-Lake Arrowhead area as a whole, is only part of the story. Even more significant is the concentration of commercial lodgings, many with swimming pools, which cluster in this area. These, together with an increasing number of elaborate week-end and summer cabins, result in the high per capita water consumption figures. For example, the Arrowhead Utility Company reported to the Public Utility Commission that in 1961 it served a population of 5,000 plus a summer influx of 35,000. Even the five thousand reported as more or less regular customers were primarily nonresident, for the permanent population of the Arrowhead Excluded Area was approximately 950 in 1961.

The department's estimates of unit values of water use by ten-year intervals up to 1990 for the Arrowhead Excluded Area are shown in Table 9. A continued high level of per capita consumption is expected, but with a dropping off and stabilizing of past increases.

TABLE 9

ESTIMATED UNIT VALUES OF WATER USE  
ARROWHEAD EXCLUDED AREA  
1960-1990

Year	Gallons per capita per day	Acre-feet per capita per year
1960	290	.328
1970	280	.313
1980	335	.376
1990	340	.381

In 1960 the Arrowhead Excluded Area used approximately six times as much water per permanent resident per day as the area which is now encompassed by the Crestline-Lake Arrowhead Water Agency. By 1990 the ratio is forecast to be about 2-1/2:1. Estimated unit values of water use by ten-year intervals for the area within the Crestline-Lake Arrowhead Water Agency are shown in Table 10.

TABLE 10

ESTIMATED UNIT VALUES OF WATER USE  
CRESTLINE-LAKE ARROWHEAD WATER AGENCY  
1960-1990

Year	Gallons per capita per day	Acre-feet per capita per year
1960	50	.058
1970	45 <sup>a</sup>	.052
1980	95	.105
1990	135	.150

a. Approximate limit available from local water supplies.



### Urban Water Requirements

Water requirements for urban purposes were determined by applying estimates of per capita water consumption to the population estimates for each decade from 1960 through 1990. Since water use in the Crestline-Lake Arrowhead area will continue to be almost wholly urban or semiurban in nature, these estimates may be considered as total requirements.

Table 11 indicates the estimated requirements for the Crestline-Lake Arrowhead area as a whole, Table 12 for the Crestline-Lake Arrowhead Water Agency area, and Table 13 for the Arrowhead Excluded Area.

TABLE 11

#### URBAN WATER REQUIREMENTS CRESTLINE-LAKE ARROWHEAD AREA 1960-1990

Year	: Unit value of urban : water use, acre-feet : per capita per year	: Population	: Total urban : requirement, : in acre-feet
1960	.095	6,700	640
1970	.089	11,300	1,000 <sup>a</sup>
1980	.141	20,000	2,830
1990	.179	32,000	5,730

a. Approximate limit of available local water supplies.

TABLE 12

#### URBAN WATER REQUIREMENTS CRESTLINE-LAKE ARROWHEAD WATER AGENCY 1960-1990

Year	: Unit value of urban : water use, acre-feet : per capita per year	: Population	: Total urban : requirement, : in acre-feet
1960	.058	5,800	340
1970	.052	9,700	500
1980	.105	17,300	1,810
1990	.150	27,900	4,170

TABLE 13

URBAN WATER REQUIREMENTS  
ARROWHEAD EXCLUDED AREA  
1960-1990

Year	: Unit value of urban : water use, acre-feet : per capita per year	: Population	: Total urban : requirement, : in acre-feet
1960	.328	900	300
1970	.313	1,600	500
1980	.376	2,700	1,020
1990	.381	4,100	1,560

Local Water Supplies

The Crestline-Lake Arrowhead area is presently served by approximately 35 local water agencies and many individuals have developed their own water supplies. The major sources of surface water supplies are Lake Arrowhead and Lake Gregory, with Green Valley Lake, Arrowbear Lake, and Deep Creek Lake also providing surface storage. All these lakes are privately owned. Lake Arrowhead supplies the Arrowhead Utility Company which presently has chosen to exclude itself from the Crestline-Lake Arrowhead Water Agency. Lake Gregory supplies the Lake Gregory Land and Water Company, Crest Forest County Water District, and sells water when available to the Crestline Village County Water District. Extensive use of these lakes for water supply is not anticipated, as excessive drawdown would be harmful to the larger lakes' recreational attractions. Furthermore, downstream users of the watersheds of Lake Gregory and Lake Arrowhead have filed injunctions to limit the amount of water available to the mountain area. The only other local sources of surface supply are natural springs which are scattered throughout the mountain area. Several of the area's water agencies derive a portion of their supplies from these springs.



Although the Crestline-Lake Arrowhead area is subjected to heavy seasonal precipitation, the majority of the precipitation is consumptively used by the trees and other vegetation within the area or leaves the area as runoff to the valleys at the base of the mountains. The small percentage of precipitation which infiltrates the area is stored in thin layers of sediments along the creek bottoms and in the joint and fracture systems of the bedrock. Water-bearing formations are limited in storage capacity and in periods of subnormal rainfall are not reliable sources of supply. Ground water is obtained from both vertical and horizontal wells, with horizontal wells supplying the greater percentage. There are approximately 200 of these horizontal wells now serving the area.

While it was not possible to determine the amount of ground water in storage and average amount of recharge, most areas within the study area are experiencing decreased flow from wells, indicating that a practical limit is being approached in the development of ground water. It has been concluded that local supplies are essentially fully developed at the present time.

#### Demand for Project Water

Table 14, showing total and supplemental water requirements for the Crestline-Lake Arrowhead area as a whole, assumes that an additional two hundred acre-feet will be available from local sources on a short term basis. However, as supplemental water becomes available, this marginal and expensive supply as well as much of the present supply which is also marginal and expensive will be replaced and withdrawals will drop back to a lower and safer level.

TABLE 14  
TOTAL AND SUPPLEMENTAL WATER REQUIREMENTS  
CRESTLINE-LAKE ARROWHEAD AREA  
1960-1990

Year	Water requirements (in acre-feet)	Local water supplies (in acre-feet)	Supplemental water requirements (in acre-feet)
1960	640	640	--
1964	800	800	--
1970	1,000	1,000	--
1972	1,410	910	500
1980	2,830	330	2,500
1990	5,730	730	5,000

The Arrowhead Utility Company is not presently committed to buy project water, but the Crestline-Lake Arrowhead Water Agency has contracted for sufficient water to supply the Arrowhead Utility Company's future expected requirements. A series of dry years, as well as increasing consumption, have necessitated increasing diversions by the utility from the Grass Valley watershed. This supply is being contested by downstream users at the present time; however, no final agreement has been reached as to the final disposition of the water from this watershed.

Due to the heavy influx of summer-time visitors, the agency may require as much as 15 percent of their yearly water deliveries in each of the peak recreational months of July and August.\* The Crestline-Lake Arrowhead Water Agency's water supply contract with the State limits delivery

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\*Albert A. Webb Associates, "Crestline-Lake Arrowhead Water Agency Letter Form Report on Agency Peaking Requirements", May 28, 1963.

in any one month of any year to eleven percent of the annual entitlement for that year. The storage to meet these higher peaking requirements could be provided in one or more of the existing lakes or by a possible agreement with the State for additional storage in Cedar Springs Reservoir.

The annual water deliveries from the State Water Project are specified in the water supply contract and are tabulated in Table 15.

TABLE 15

ANNUAL WATER SUPPLIES CONTRACTED FOR  
DELIVERY FROM THE STATE WATER PROJECT

Year	: Annual water deliveries, acre-feet
1972	500
1973	750
1974	1,000
1975	1,250
1976	1,500
1977	1,750
1978	2,000
1979	2,250
1980	2,500
1981	2,750
1982	3,000
1983	3,250
1984	3,500
1985	3,750
1986	4,000
1987	4,250
1988	4,500
1989	4,750
1990	5,000



#### CHAPTER IV. COST OF WATER SERVICE FROM THE STATE WATER PROJECT

The cost of water from the State Water Project to the Crestline-Lake Arrowhead Water Agency is dependent upon the Agency's allocated portion of construction, operation and maintenance costs of the California Aqueduct, the costs accruing from the Delta Water Charge, and the cost of local conveyance systems. Necessary local conveyance systems and other local facilities will be constructed and paid for by the Agency. Construction of the State Water Project, on the other hand, will be undertaken by the State and will be financed with moneys from the California Water Fund and from the sale by the State of general obligation bonds authorized under the Water Resources Development Bond Act of 1960.

Under the Agency's contract for water service with the State, each contracting agency undertakes an obligation to repay the State for its proportionate share of costs associated with water deliveries from the State Water Project. This obligation includes a share of the costs incurred for the construction of transportation facilities, a proportionate share of the operation and maintenance costs of those facilities, and the Delta Water Charge. The allocation of the costs of the transportation facilities to each agency is made on the proportionate use of facilities method of cost allocation. This method is based on the relative use of each aqueduct reach required to convey water to the Agency from the Delta as measured by the average of the following two ratios: (1) the ratio of the contractor's maximum annual entitlement to be delivered from or through the reach to the total of the maximum annual entitlements of all contractors to be delivered from or through the reach; and (2) the ratio of the capacity provided in the reach for the transport and delivery of project water to all contractors served from or through the reach. The contract limits peak deliveries of

water from the project transportation facilities in any one month of any year to a maximum of eleven percent of the Crestline-Lake Arrowhead Water Agency's annual entitlement for that year. Conduit and regulatory capacity sufficient to handle such peak delivery was therefore used as a basis for cost allocation.

### State Water Project Facilities

The cost of the State Water Project facilities allocated to the Crestline-Lake Arrowhead Water Agency was estimated for the Agency at the proposed Cedar Springs Reservoir turnout based on the contracted maximum annual water entitlement of 5,000 acre-feet. Table 16 indicates the estimated annual component costs of water service from the State Water Project to the Crestline-Lake Arrowhead Water Agency for specific years during the period of buildup in water demand to 1990, the year of maximum demand.

TABLE 16

#### ANNUAL CHARGES FOR WATER SERVICE FROM THE STATE WATER PROJECT

		Transportation charge				
Year	: Estimated annual water delivery, in acre-feet:	: Capital cost component	: Minimum <sup>a</sup> operation and maintenance:	: Variable <sup>b</sup> operation and maintenance:	: Delta Water Charge	: Total payment to State
1964	--	\$ 4,724	\$ 0	\$ 0	\$ 0	\$ 4,724
1972	500	70,356	19,375	10,057	3,645	103,433
1980	2,500	75,087	19,195	62,771	18,225	175,278
1990	5,000	75,087	19,954	163,691	36,450	295,182

- a. Minimum operation, maintenance, power, and replacement component charges are those necessary to maintain the system even though there are no water deliveries to the Crestline-Lake Arrowhead Water Agency.
- b. Variable operation, maintenance, power, and replacement component charges are those associated with moving water to the Crestline-Lake Arrowhead Water Agency.



## Water Deliveries at Cedar Springs Reservoir from State Water Project

The Crestline-Lake Arrowhead Water Agency, located in the mountains directly south and east of Cedar Springs Reservoir, has requested its turnout to be directly from the reservoir. Because of the Agency's location, it will have an excellent opportunity for increased regulatory storage, if desired, and emergency storage at Cedar Springs. Because of the extreme seasonal fluctuations in the Agency's water demands and the lack of suitable reservoir sites within the Agency, the Agency has been considering the use of Cedar Springs Reservoir for these local uses, under applicable provisions of the contract.

### Local Distribution Facilities

In order to distribute water imported through the State Water Project, it will be necessary for the Crestline-Lake Arrowhead Water Agency to provide a distribution system throughout its service area. A relatively expensive and complex distribution system will be necessary to serve imported water to the many scattered mountain communities within the investigational area.

### Construction Features of Local Conveyance Facilities

An extensive engineering study will be required to determine the most economical design and alignment of the local distribution facilities, but for the purposes of this report, a reconnaissance plan was prepared for a main distribution line and attendant pumping plants which could deliver water through the area from Cedar Springs Reservoir to Green Valley. This line starts in the vicinity of the upstream portal of the San Bernardino Tunnel, and runs up Sawpit Canyon, then through the towns of Valley of



Enchantment, Crestline, and Arrowhead Highlands. From the community of Arrowhead Highlands to the junction of the road to Green Valley Lake, the line roughly parallels State Highway 18.

The distribution line and pumping plants were sized to deliver 11 percent of the maximum annual entitlement of 5,000 acre-feet in any one month. Pipes and pumping plants were designed for a maximum capacity of 9 cfs in the reach from Cedar Springs to Crestline, 6.5 cfs in the reach from Crestline to Lake Arrowhead, and 3 cfs in the reach from Lake Arrowhead to Green Valley Lake.

The main components of the distribution line would be 5 pumping plants, 5.6 miles of 24-inch diameter pipe, 7.7 miles of 18-inch diameter pipe, and 9.1 miles of 15-inch diameter pipe. The intake of Pumping Plant No. 1 would be located either in Cedar Springs Reservoir or in a vault in the site of the San Bernardino Tunnel, into which two wells would be sunk from the surface above. Pumping Plant No. 2 would be located about 1 mile beyond Pumping Plant No. 1, while the remaining three pumping plants are about equally spaced along the system. No estimates were made of the need for additional regulatory storage facilities.

#### Cost of Facilities

Estimates of construction costs for the described local conveyance system were prepared by the Department, and are shown in Table 17. The annual capital repayment charge was based on 5 percent interest and a 40-year repayment period.

TABLE 17

## ESTIMATED COST COMPONENTS OF LOCAL CONVEYANCE SYSTEM

	:	:	:	Annual	:	Annual	:
	:Capacity,	: Capital	:	capital	:	Pumping and	:
Facilities	: in	: cost in	:	repayment,	:	O&M costs	: annual cost,
	:acre-feet:	: dollars	:	in dollars	:	in dollars	: in dollars
	: per year:		:	per year	:	per year	: per year
Pipeline from Cedar Springs Reservoir to Green Valley Lake, including Pumping Plants	5,000	\$3,079,000		\$179,500		\$332,000	\$511,500

The costs of water from the State Water Project, including the costs of local facilities, have been translated into equivalent unit costs per acre-foot for purposes of comparison with local unit water costs. These costs do not represent the actual average water cost for any given year, but instead, are equivalent unit rates or charges that, if applied to each acre-foot of entitlement during the repayment period, would return all costs with interest, at the project interest rate.

Table 18 shows the equivalent unit costs of various components of service from the State Water Project, including the costs associated with the local conveyance facilities.

TABLE 18

ESTIMATED UNIT COSTS OF WATER SERVICE  
FROM THE STATE WATER PROJECT

Components of cost	Equivalent unit rate, in dollars per acre-foot
<u>State Water Project Facilities</u>	
Operation, maintenance, and replacement cost of transportation expense	\$ 34.26
Capital cost of transportation expense	22.27
Delta Water Charge	<u>7.29</u>
Total of cost components for State Water Facilities	<u>\$ 63.82</u>
<u>Local Conveyance Facilities</u>	
Estimated operation, maintenance, and replacement expense	\$ 55.60
Estimated capital cost expense	<u>32.45</u>
Total of cost components for local conveyance facilities	<u>\$ 88.05</u>
Total of cost components for all water facilities	<u>\$151.87</u>

## CHAPTER V. ECONOMIC JUSTIFICATION AND FINANCIAL CAPABILITY

Basic to the consideration of the execution of a water supply contract between the State of California and the Crestline-Lake Arrowhead Water Agency are the two factors of economic justification and financial capability.

Economic justification is simply a question of the economic worth of the proposed water service while financial capability is the question of the agency's ability to pay the costs of water importation.

### Economic Justification

A water development project can be considered economically justified if the economic benefits derived from the use of the resulting water supplies exceed the cost of providing the water service. In analyzing the economic justification of a water importation project for urban or semi-urban purposes, definite criteria have not been developed. Economic justification has often been shown by demonstrating a need for additional water supplies, that alternative sources of water would be more costly, and that the costs of the project are not significantly greater than existing water costs. Where no alternatives are available, economic justification for urban areas has been shown if the cost of water importation is not unreasonably high compared to the cost of present water services and if the area's economic development would be restricted without the additional water supplies.

Water service from the State Water Project to the Crestline-Lake Arrowhead area is anticipated to be only for urban purposes. Furthermore, it is expected to be utilized for domestic, recreational, and commercial purposes almost exclusively, with no industrial development anticipated in

the area. Therefore, the benefits accruing from water use were compared with project charges in order to determine if the project would be economically justified.

One method of measuring urban benefits is to assume them to be equal to the next cheapest source of water supply. In the present instance, however, there is no practical alternative source of water. Another measure of economic justification is whether project water can be delivered at costs not unreasonably above present water costs for the area under consideration and whether the future economic development of the area would be impaired without the future availability of imported water.

Under the forecasted conditions of future growth, 87 percent of the Crestline-Lake Arrowhead total water needs would be imported through the State Water Project in 1990. The present cost of water production in the area was not determined but the cost to consumers in the Crestline-Lake Arrowhead area currently ranges from over \$200 per acre-foot to well over \$1,000 per acre-foot. The cost of delivery of imported water to the area will be about \$65 per acre-foot on an equivalent unit rate basis (i.e., the cost that, when applied to each acre-foot of entitlement during the full repayment period, will repay all costs at the applicable interest rates), and the additional costs of delivering the water to consumers would not raise the total cost to much above \$200 per acre-foot. Thus, water imported from the State Water Project could either be about equal to current water costs or could save the urban consumer up to about \$800 per acre-foot, over local water.

Since the economy and population of the Crestline-Lake Arrowhead area have grown substantially up to the limits of local water supplies which are considerably more expensive to the consumer than the necessary costs of



State Water Project water, it is obvious that benefits accruing to the area from water importation, which will allow the area to continue to develop, will exceed water costs. It is apparent that water importation for urban and semiurban purposes from the State Water Project is economically justified.

#### Financial Capability

To establish the financial capability of a public agency to undertake a particular project, it is necessary to show that the public credit of the agency is strong enough to reasonably support the day-to-day operating costs of the project and to repay any long-term debt which it may be necessary to undertake in order to finance the facilities. Therefore, it is necessary to show that the Crestline-Lake Arrowhead area, and more particularly the present Crestline-Lake Arrowhead Water Agency, will not be unduly burdened by its overall debt during the project repayment period. Furthermore, methods of obtaining funds for debt repayment must be practical and reasonable.

#### Historical and Projected Assessed Valuations

The assessed valuation of property within the Crestline-Lake Arrowhead area for the fiscal year 1963-64, as assessed by the County Assessor, was \$31,416,000, \$20,850,000 of which was within the Crestline-Lake Arrowhead Water Agency area and \$10,566,000 within the Arrowhead Excluded Area. These valuations represent estimated market values of about \$138,000,000 for the area as a whole, \$91,500,000 in the Crestline-Lake Arrowhead Agency area, and \$46,500,000 in the Arrowhead Excluded Area.

Increased population and economic activity, as well as rising price levels, have moved the assessed valuation of the Crestline-Lake Arrowhead area steadily upward from slightly less than twenty million dollars for the fiscal year 1958-59 to over thirty-one million dollars for 1963-64. Table 19 shows



the trend of assessed valuations for the area as a whole and for the sections now making up the Crestline-Lake Arrowhead Water Agency and the Arrowhead Excluded Area.

Assessed valuations of property for both the Crestline-Lake Arrowhead Water Agency area and for the Arrowhead Excluded Area will undoubtedly reflect the Agency's continued development in the future. In order to analyze the financial capability of the area to pay for service from the State Water Project, projections of future assessed valuations within both areas were developed. These projections were conservatively made, using a projected per capita assessed valuation essentially the same as that for 1963-64 for both the agency area and the excluded area.

Historically, the per capita assessed valuation of the area has been high because of the low proportion of permanent residents to the total number of dwelling units due to recreational, vacation cabin, construction. While a considerable increase in permanent resident population is projected, rising assessment rates and new construction of increasing value is expected to offset the effect of population increase. Since much of the area will remain essentially a recreation area, permanent population will continue to lag behind urban development. This will be especially true of the Arrowhead Excluded Area, where per capita assessed valuation is presently over three times as great as that of the Agency. The projected assessed valuations for the Agency, the excluded area, and the Crestline-Lake Arrowhead area as a whole are shown in Table 20.

TABLE 19

## HISTORICAL ASSESSED VALUATIONS

Year	Crestline-Lake Arrowhead area			Crestline-Lake Arrowhead Water Agency area			Arrowhead Excluded Area		
	Amount	Percent : change from : previous year		Amount	Percent : change from : previous year		Amount	Percent : change from : previous year	
1958-59	\$19,682,000	--		\$14,108,000	--		\$ 5,574,000	--	
1959-60	20,163,000	+ 2.44		14,506,000	+ 2.82		5,657,000	+ 1.49	
1960-61	22,262,000	+10.41		15,586,000	+ 7.45		6,676,000	+18.01	
1961-62	24,688,000	+10.90		17,030,000	+ 9.26		7,658,000	+14.71	
1962-63	27,975,000	+13.31		18,924,000	+11.12		9,051,000	+18.19	
1963-64	31,416,000	+12.30		20,850,000	+10.18		10,566,000	+16.74	

TABLE 20

PRESENT AND PROJECTED ASSESSED VALUATIONS  
1960-1990

Fiscal year	Crestline-Lake Arrowhead area			Crestline-Lake Arrowhead : Water Agency area			Arrowhead Excluded Area		
	Population	Assessed value per capita	Total (000)	Population	Assessed value per capita	Total (000)	Population	Assessed value per capita	Total (000)
1959-60	6,700	\$3009	\$ 20,163	5,800	\$2501	\$14,506	900	\$6286	\$ 5,657
1963-64	7,900	3977	31,416	6,800	3066	20,850	1,100	9605	10,566
1969-70	11,300	3920	44,300	9,700	3000	29,100	1,600	9500	15,200
1979-80	20,000	3878	77,550	17,300	3000	51,900	2,700	9500	25,650
1989-90	32,000	3833	122,650	27,900	3000	83,700	4,100	9500	38,950

## Historical and Projected Bonded Indebtedness

The Crestline-Lake Arrowhead area currently carries a bonded debt equal to about 13 percent of its assessed valuation. The bonded debt within the Crestline-Lake Arrowhead Water Agency area is approximately 12 percent of the assessed valuation while that of the Arrowhead Excluded Area is around 15 percent of the assessed valuation. School bonds account for the greatest proportion of the debt in both areas, amounting to over 79 percent of the Agency area total and almost 68 percent of the excluded area total.

Present bonded indebtedness for both the Agency and the excluded area as well as the Crestline-Lake Arrowhead area as a whole is shown below in Table 21.

TABLE 21

### PRESENT BONDED INDEBTEDNESS BY TYPE OF DISTRICT<sup>a</sup>

Type of District :	Crestline-Lake Arrowhead area :		Crestline-Lake Arrowhead Water Agency :		Arrowhead Excluded Area :	
	Amount	Percent	Amount	Percent	Amount	Percent
Schools	\$2,745,774	74.8	\$1,823,847	79.2	\$ 921,927	67.5
County	181,543	5.0	120,489	5.2	61,054	4.5
Water <sup>b</sup>	279,886	7.6	279,886	12.2	0	0
Sanitation <sup>c</sup>	460,400	12.6	77,597	3.4	382,803	28.0
Others <sup>d</sup>	<u>1,124</u>	<u>0</u>	<u>1,124</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	<u>\$3,668,727</u>	<u>100</u>	<u>\$2,302,943</u>	<u>100</u>	<u>\$1,365,784</u>	<u>100</u>

a. As of June 30, 1963.

b. Arrowbear Park County Water District and Running Springs County Water District.

c. Crestline Sanitation District and Lake Arrowhead Sanitation District.

d. Flood Control Zone No. 2, only.

While bonded indebtedness for the area as a whole has increased over 40 percent since 1959, bonded debt as a percentage of assessed valuation has remained virtually the same. Table 22 shows the bonded debt and its relationship to assessed valuations for the Crestline-Lake Arrowhead Water Agency area, the Arrowhead Excluded Area, and the entire area as an entity for the last five years.

Although exact projections are difficult, it is estimated that the amount of bonded indebtedness exclusive of debt incurred for State Water Project facilities will increase from 13.1 percent to 14.5 percent of assessed valuation for the area as a whole, and from 12.2 percent to 14.0 percent of assessed valuation for the Crestline-Lake Arrowhead Water Agency area. For the Arrowhead Excluded Area bonded indebtedness is expected to be 15.6 percent of assessed valuation in 1990, up from the present 15.1 percent. Table 23 shows the present and projected indebtedness to 1990.

TABLE 22

HISTORICAL BONDED INDEBTEDNESS<sup>a</sup>

	Crestline-Lake Arrowhead area			Crestline-Lake Arrowhead Water Agency			Arrowhead Excluded Area		
Year	Bonded : debt : (000's):	Assessed : valuation : (000's)	Debt as : a percent : of valua- : tion :	Bonded : debt : (000's):	Assessed : valuation : (000's)	Debt as : a percent : of valua- : tion :	Bonded : debt : (000's):	Assessed : valuation : (000's)	Debt as : a percent : of valua- : tion :
1959	\$2,603	\$19,682	13.2	\$1,464	\$14,108	10.4	\$1,139	\$5,574	20.4
1960	2,753	20,163	13.7	1,660	14,506	11.4	1,093	5,657	19.3
1961	2,609	22,262	11.7	1,578	15,586	10.1	1,031	6,676	15.4
1962	2,463	24,688	10.0	1,496	17,030	8.8	967	7,658	12.6
1963	3,669	27,975	13.1	2,303	18,924	12.2	1,366	9,051	15.1

a. As of June 30.



TABLE 23

PRESENT AND PROJECTED BONDED INDEBTEDNESS<sup>a</sup>

	Crestline- Lake Arrowhead area		Crestline-Lake Arrow- head Water Agency area		Arrowhead Excluded Area	
Year:	:Percent of:		:Percent of:		:Percent of:	
	: Bonded debt:	assessed	: Bonded debt:	assessed	: Bonded debt:	assessed
	: valuation :		: valuation :		: valuation :	
1963	\$ 3,669,000	13.1	\$ 2,303,000	12.2	\$1,366,000	15.1
1970	5,980,500	13.5	3,783,000	13.0	2,197,500	14.4
1980	10,857,000	14.0	7,006,500	13.5	3,850,500	15.0
1990	17,784,250	14.5	11,718,000	14.0	6,066,250	15.6

a. Excluding debt for State Water Project water supply development.

Financing Future Obligations

The determination of financial capability requires an analysis of several interrelated factors, including the amount of money required to pay an agency's allocated share of costs, the probable repayment schedule necessary, the present and future assessed valuation of the agency (including its current and future debt for other public works), the tax rates prevalent in the area, and the additional tax rates that will be incurred in undertaking the importation of project water.

An investigation was made of the present financial condition of the Crestline-Lake Arrowhead Water Agency. The data gathered are presented in detail in Appendix B of this report.

Comparison with Assessed Valuations. The present bonded indebtedness of the Crestline-Lake Arrowhead Water Agency area is approximately 12 percent, and that of the Crestline-Lake Arrowhead area as a whole, 13 percent. The former is expected to increase to 13 percent by 1970, and the latter to 13.5 percent. Both will be increased still further by the debt which will be incurred for service from the State Water Project.

From the schedules of estimated allocated construction costs, costs of local conveyance facilities, and assessed valuations, the total debt outstanding in any year on the transportation portion of the State Water Project and local conveyance facilities was determined and calculated as a percentage of assessed valuation. These data are shown in Tables 24 and 25.

TABLE 24

SUMMARY OF CAPITAL REPAYMENT OBLIGATIONS  
RESULTING FROM WATER SERVICE

Crestline-Lake Arrowhead Water Agency area							
Capital Repayment							
Year	Assessed:	Local conveyance facilities	State Water	Facilities	Total		
	: valuation:	: Amount	: Percent of:	: Amount	: Percent of:	: Amount	: Percent of
	: (\$000)	: (\$000)	: assessed	: (\$000)	: assessed	: (\$000)	: assessed
	:	: valuation:	: (\$000)	: valuation:	: (\$000)	: valuation:	: valuation
1972	\$33,660	\$2,999	8.9	\$1,598	4.8	\$4,597	13.7
1980	51,900	2,717	5.2	1,560	3.0	4,277	8.2
1990	83,700	2,169	2.6	1,321	1.6	3,490	4.2

TABLE 25

SUMMARY OF CAPITAL REPAYMENT OBLIGATIONS  
RESULTING FROM WATER SERVICE

Crestline-Lake Arrowhead area as a whole							
Capital Repayment							
Year	Assessed:	Local conveyance facilities	State Water	Facilities	Total		
	: valuation:	: Amount	: Percent of:	: Amount	: Percent of:	: Amount	: Percent of
	: (\$000)	: (\$000)	: assessed	: (\$000)	: assessed	: (\$000)	: assessed
	:	: valuation:	: (\$000)	: valuation:	: (\$000)	: valuation:	: valuation
1972	\$ 50,950	\$2,999	5.9	\$1,598	3.1	\$4,597	9.0
1980	77,550	2,717	3.5	1,560	2.0	4,277	5.5
1990	122,650	2,169	1.8	1,321	1.1	3,490	2.8

In the above tables the total debt resulting from capital costs of the State Water Project and local conveyance facilities has been shown as a percentage of assessed value for both the area as a whole and for the Crestline-Lake Arrowhead Water Agency area by itself.

In the year of the highest debt ratio, occurring about 1972, the total obligation for water service and other public debt would be about 27 percent of the assessed valuation of the present Crestline-Lake Arrowhead Agency area. If the Arrowhead Excluded Area has become a part of the Agency by that time, the debt ratio will be about 23 percent of assessed valuation. However, increasing assessed valuation as well as payment of capital costs result in a fairly rapid decrease in the debt ratio even though projected bonded debt for other than the State Water Project Water Supply Development is expected to rise. By 1980 the ratio of total debt to assessed valuation is expected to be 21.7 percent if calculated without the Arrowhead Excluded Area in the Agency and only 19.5 percent with it in the Agency. The decline in the ratio of total bonded debt to assessed valuation from the high year of 1972 is shown in Table 26.

TABLE 26

PROJECTED TOTAL BONDED DEBT AS A  
PERCENTAGE OF ASSESSED VALUATION<sup>a</sup>

Year	: Crestline-Lake Arrowhead : : Water Agency area only	Total Crestline-Lake Arrowhead area
1972	21.1%	22.8%
1980	21.7%	19.5%
1990	18.2%	17.3%

a. Total debt for local conveyance facilities and State Water Facilities added to other projected bonded debt.

At a maximum, which may never be reached due to the presently excluded Arrowhead area joining the Crestline-Lake Arrowhead Water Agency, the ratio of debt to evaluation, although not ideal, appears supportable.

Levels of Ad Valorem Taxation. Tax rates for both the Crestline-Lake Arrowhead Water Agency area and the area as a whole have been increasing in the past few years, as has been the case in most areas in Southern California. The weighted average tax rate for the agency area is about \$7.99 per \$100 assessed valuation at the present time and that of the area as a whole about \$8.30 per \$100 assessed valuation. Table 27 shows the weighted average tax rates and their component parts for the Agency area as well as the area as a whole during the past six years.

Under the repayment schedule for the capital cost component of the transportation facilities developed during contract negotiations with the Crestline-Lake Arrowhead Water Agency, the Agency made a payment of \$4,724 for the year 1964. For the year 1965 the amount will decrease to \$4,483, after which time the amount paid annually would increase until 1978, when \$75,087 would be paid. Payments would then remain constant until 2013, after which time they would decrease until full payment of the capital costs would have been made in 2027. In addition, a capital cost component for the local conveyance facilities was estimated. A projected forty-year payment of \$179,438 a year beginning in 1970 was added to the annual repayment requirements so the estimate would include both the capital cost component of the transportation portion of the State Water Project and the probable cost of local conveyance facilities.

TABLE 27

WEIGHTED AVERAGE AD VALOREM  
TAX RATE COMPONENTS

Year	Weighted Average Tax Rate Components (Per \$100 assessed value)				
	General	School	Water	Special	Total
	County	Districts	Districts	Districts	Tax Rate
	Tax rate				
<u>Crestline-Lake Arrowhead Area</u>					
1958-59	\$1.55	\$3.91	\$0.09	\$1.46	\$7.01
59-60	1.78	4.52	.17	1.47	7.94
60-61	1.80	4.32	.17	1.36	7.65
61-62	1.80	4.24	.17	1.38	7.59
62-63	1.97	4.37	.27	1.31	7.92
63-64	1.93	4.22	.54	1.61	8.30
<u>Crestline-Lake Arrowhead Water Agency Area</u>					
1958-59	\$1.55	\$3.92	\$0.13	\$1.04	\$6.64
59-60	1.78	4.53	.25	1.03	7.59
60-61	1.80	4.33	.25	0.98	7.36
61-62	1.80	4.25	.25	1.00	7.30
62-63	1.97	4.38	.40	0.93	7.68
63-64	1.93	4.23	.81	1.02	7.99

These annual payment requirements were compared with projections of valuations for both the area as a whole and for the Crestline-Lake Arrowhead Water Agency area only to see if the necessary rate of taxation, should all capital repayment obligations be collected through ad valorem taxation, would place an unreasonable burden on the local taxpayers.

The tax rates computed as necessary for capital repayment, based on a maximum entitlement of 5,000 acre-feet annually, if all costs are



carried by the present Crestline-Lake Arrowhead Water Agency area only, are shown in Table 28. The tax rates for the area as a whole (i.e., including the Arrowhead Excluded Area) are shown in Table 29. For the present agency area only the tax rate maximum, in 1972, would amount to about \$0.74 per \$100 assessed valuation. For the area as a whole, the tax rate maximum, also in 1972, would amount to about \$0.49 per \$100 assessed valuation.

TABLE 28

TAX RATE NECESSARY FOR CAPITAL REPAYMENT OF  
LOCAL CONVEYANCE FACILITIES AND STATE WATER FACILITIES

Crestline-Lake Arrowhead Water Agency							
				Capital repayment			
Year	Assessed valuation:	Local conveyance facilities	Transp. portion of: State Water Facil.	Total attributable to water service			
	(\$000)	Amount	Tax rate <sup>a</sup>	Amount	Tax rate <sup>a</sup>	Amount	Tax rate <sup>a</sup>
1972	\$33,660	\$179,438	\$0.53	\$70,356	\$0.21	\$249,794	\$0.74
1980	51,900	179,438	.35	75,087	.14	254,525	.49
1990	83,700	179,438	.21	75,087	.09	254,525	.30

a. Dollars per \$100 assessed valuation

TABLE 29

TAX RATE NECESSARY FOR CAPITAL REPAYMENT OF  
LOCAL CONVEYANCE FACILITIES AND STATE WATER FACILITIES

Crestline-Lake Arrowhead area							
				Capital repayment			
Year	Assessed valuation:	Local conveyance facilities	Transp. portion of: State Water Facil.	Total attributable to water service			
	(\$000)	Amount	Tax rate <sup>a</sup>	Amount	Tax rate <sup>a</sup>	Amount	Tax rate <sup>a</sup>
1972	\$ 50,950	\$179,438	\$0.35	\$70,356	\$0.14	\$249,794	\$0.49
1980	77,550	179,438	.23	75,087	.10	254,525	.33
1990	122,650	179,438	.15	75,087	.06	254,525	.21

a. Dollars per \$100 assessed valuation



For purposes of this analysis, it was assumed that capital repayment for both State and local water facilities would be made through ad valorem taxation. On the bases of historical trends and projected population, assessed valuation and bonded debt, the tax rates shown in Table 30 were forecast.

TABLE 30

PROJECTED TAX RATES, WEIGHTED AVERAGE

Year	Crestline-Lake Arrowhead		Crestline-Lake Arrowhead	
	Water Agency area only		area as a whole	
	Rate <sup>a</sup>	Rate <sup>a</sup>	Rate <sup>a</sup>	Rate <sup>a</sup>
	Without Capital	With Capital	Without Capital	With Capital
	Repayment for	Repayment for	Repayment for	Repayment for
	water facilities	water facilit.	water facilities	water facilit.
1972	\$3.63	\$9.37	\$3.76	\$9.25
1980	8.93	9.42	9.01	9.34
1990	9.30	9.60	9.32	9.53

a. Per \$100 assessed valuation

While the tax rates projected for 1990 are higher than those presently in existence, the overall increase is at a smaller rate than that which has occurred in the last five years. From comparison of these tax rates with present and projected rates in other areas and consideration of the projected ratio of bonded debt and water service contract debt to future assessed valuation under conditions of water importation, the conclusion was drawn that the Crestline-Lake Arrowhead Water Agency would have the financial capability of successful performance of its obligations under a water service contract with the State for 5,000 acre-feet of annual water delivery as a maximum entitlement.

## CHAPTER VI. CONCLUSIONS

Analysis of the data gathered and presented in this report has led to the following conclusions:

1. The local water supplies of the Crestline-Lake Arrowhead area are substantially fully developed.
2. Without a supply of supplemental water, further growth and recreational usage will be seriously restricted.
3. The investigational area will have an economic demand for water from the State Water Project of about 5,000 acre-feet per year by 1990. Part of this demand will be generated by the area surrounding Lake Arrowhead which is not now a part of the Crestline-Lake Arrowhead Water Agency, but which can be expected to join as the demand for water grows to exceed the supply of local water available.
4. The Crestline-Lake Arrowhead Water Agency is empowered by its enabling legislation to enter into contracts with the State for the importation of water supplies from the State Water Project.
5. The financial position of the Crestline-Lake Arrowhead Water Agency is such that the increased debt and taxation requirement necessitated by the execution and performance of a water service contract with the State will not impose an unreasonable financial burden on the Agency, even if the present Arrowhead Excluded Area does not join the Agency.
6. Financing the construction of necessary local conveyance facilities, in addition to the debt required for a contract with the State, would not increase the Agency's total ratio of debt obligations to assessed valuation beyond acceptable limits even if the Arrowhead Excluded Area were not to join the Agency.

7. The Crestline-Lake Arrowhead Water Agency has the ability, the necessity, the economic justification, and the financial capability required to enter into a contract with the State of California for water from the State Water Project.

APPENDIX A

RECOMMENDATIONS ON OPTION WATER FOR  
CRESTLINE-LAKE ARROWHEAD WATER AGENCY



## APPENDIX A

### RECOMMENDATIONS ON OPTION WATER FOR CRESTLINE-LAKE ARROWHEAD WATER AGENCY

On February 7, 1964, the Crestline-Lake Arrowhead Water Agency transmitted to the Department a resolution expressing the Agency's desire to exercise its option under Article 8 of the Agency's contract and increase its maximum annual entitlement by 800 acre-feet. At the same time, it transmitted proposed amendments to Table A reflecting a suggested delivery schedule of annual entitlements including the additional water. A copy of the Agency's original and proposed revision to Table A appears at the close of this appendix.

We have analyzed the Agency's request to determine if the water can be put to beneficial use prior to 1990 and to determine if the Agency has the financial ability to pay for the added water.

#### Need for Option Water

Since the Crestline-Lake Arrowhead area is, and will remain, largely a recreational appendage of the Southern California urban metro-polis which centers on Los Angeles, water consumption is not limited to the requirements of the local population. However, it can be expressed in terms of consumption per permanent resident and is related to population growth. Most of the recent increase in the area's population and much of the projected population growth has been based on expanding income producing activities, which stem from the area's recreational attractions.

Updating of the 1961 Department report on the area is now being completed as part of the work connected with Bulletin No. 119-19 "Feasibility of Serving the Crestline-Lake Arrowhead Water Agency from the State Water Project". The projections of water requirements for the Crestline-



Lake Arrowhead Water Agency area and the Arrowhead Excluded Area (an area surrounding Lake Arrowhead which is not now part of the Agency but which is expected to become a part of it in the future) indicate that by 1990, total water requirements will be approximately 5,730 acre-feet. At the present time, about 800 acre-feet of water are being provided locally and by 1970 about a thousand acre-feet will probably be obtained by local withdrawals. This latter amount has been estimated to be the maximum amount of water available from local supplies.

The development of sources of local water is more expensive than imported water. A major part of this cost is a result of the high capital cost involved in drilling wells that have both a short life and a small yield. Accordingly, when a less expensive supply that is firmer in character becomes available through the State Water Project, it is anticipated that, as these wells lose production, no new ones will be drilled to replace them. Accordingly, the production from local water resources in the area was postulated to gradually decline after imported water becomes available to a level of about 330 acre-feet per year in 1980.

By 1990 increased demand will necessitate either additional imported water or increasing the use of local supplies to approximately their present levels. In our prior studies it was assumed that the latter situation would occur and that the net supplemental water requirement for 1990 would be 5,000 acre-feet, the amount originally contracted for by the Agency. A requirement of 5,000 acre-feet of imported water in 1990 had also been projected for the Crestline-Lake Arrowhead area by the Agency's consultant.\* However, since local water supplies are more expensive than

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\*Albert A. Webb Associates "Crestline-Lake Arrowhead Water Agency Eligibility Report on Imported Water Requirements and Financial Analysis of Ability to Meet Capital Recovery Costs", May 1963.

the state water, it is probable that many local wells will not be maintained once imported water becomes available and that increasing local supplies may not be feasible. Therefore, it appears that there will be a justifiable economic need for the option water that the Agency has requested.

The Crestline-Lake Arrowhead Water Agency's proposed revision to Table A calls for an increase in the first year's water deliveries, with increases thereafter of nearly 50 acre-feet per year up to the revised maximum annual entitlement. As such, it reflects the replacement of very expensive local water by much cheaper imported water. Imported water will certainly replace much of the marginal supply which is now, of necessity, being utilized so that probably less than half of the presently developed supply would be available in 1990.

#### Financial Ability to Pay for Option Water

An analysis was made of the effect on the Agency's financial capability if the Agency's maximum annual entitlement was increased by the amount of the option water. This analysis indicated that the total obligation for water service and other public debt would be 29.3 percent of assessed valuation of the present Crestline-Lake Arrowhead Water Agency area in the year of highest debt ratio. This would be lowered to 24.3 percent of total assessed valuation if the presently excluded Arrowhead area were to join the Agency by 1972.

While the maximum potential debt to valuation ratio, for the Agency area alone, is just below the point (30 percent) which the Department considers excessive, the Agency's water requirements are predicated upon the annexation of the Lake Arrowhead area. Thus, it is considered that the area will have a debt to valuation ratio of about 24 percent with the granting of the option water.

## Conclusions and Recommendations

The Department's latest estimates of the Agency's water requirements, presently being incorporated in the forthcoming report, Bulletin No. 119-19, show that local water supplies plus the presently contracted State Water Project entitlement could meet the Agency's 1990 water requirements. However, it is concluded that all of the necessary local supplies will not be readily available after they are once replaced by much less expensive imported water. Therefore, option water will be an economically feasible alternative to the use of local supplies.

We conclude that the Crestline-Lake Arrowhead Water Agency will be able to put the option water to beneficial use prior to 1990 and will be financially able to pay for the additional option water. Based on this conclusion, we recommend that the Agency's request for option water be granted.

TABLE A -1

ANNUAL ENTITLEMENTS  
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

Year	:	Water Delivery	:	Contract	:	Modified
	:	Year	:	Table A	:	Table A*
1		1972		500		580
2		1973		750		870
3		1974		1,000		1,160
4		1975		1,250		1,450
5		1976		1,500		1,740
6		1977		1,750		2,030
7		1978		2,000		2,320
8		1979		2,250		2,610
9		1980		2,500		2,900
10		1981		2,750		3,190
11		1982		3,000		3,480
12		1983		3,250		3,770
13		1984		3,500		4,060
14		1985		3,750		4,350
15		1986		4,000		4,640
16		1987		4,250		4,930
17		1988		4,500		5,220
18		1989		4,750		5,510
19		1990		5,000		5,800

And each succeeding year thereafter,  
for the term of this contract as a  
maximum annual entitlement.

5,000

5,800

\*On September 28, 1964, the Agency's annual entitlements were changed by  
contract amendment to the values shown in this column.



APPENDIX B

CREDIT ANALYSIS OF THE CRESTLINE-

LAKE ARROWHEAD WATER AGENCY





APPENDIX B

CREDIT ANALYSIS OF THE  
CRESTLINE-LAKE ARROWHEAD WATER AGENCY

A. Statement of Debt of the Crestline-Lake Arrowhead Water Agency

1. Net Direct Debt (full faith and credit) June 30, 1963
  - a. Bonds: None
  - b. Floating debt: \$36,000
  - c. Total debt: \$36,000
2. Special Obligations (not full faith and credit): None
3. Limitation on Debt
  - a. Promissory notes: May be issued in amounts not exceeding the lesser of \$500,000, or two percent of the assessed valuation of taxable property in the Agency. The interest rate limit is six percent per annum and the maturity of notes shall not be greater than three years from date of issuance.
  - b. General obligation bonds: Interest rate on bonds may not exceed five percent per annum and maturity may not be greater than 40 years from date of issue.
  - c. Applicable statutes: Calif. Statutes 1st Ex. Sess. 1962, Section 11, Subdivision 11 (promissory notes), and Sections 1, 18, 19, and 22 (bonds).
4. Amount of Bonds Authorized but Unissued: None
5. Utilities Operated by the Agency (other than water service): None

B. Debt of Overlapping, Coterminous, and Underlying Political Units

Name and character of unit bearing bonded indebtedness	:	Net debt	:	Net debt assignable to the Agency's area:	:	Date of statement
	:		:	\$	:	Amount
San Bernardino County		\$ 6,066,000		1.99		\$ 120,489 6-30-1963
Arrow Bear Park County Water District		41,000		94.84		38,886 "
Running Springs County Water District		241,000		100.00		241,000 "
San Bernardino County Flood Control District No. 2		2,603,000		0.043		1,124 "
Crestline Sanitation District		70,400		100.00		70,400 "
Lake Arrowhead Sanitation District		390,000		1.85		7,197 "
School Districts:						
Los Flores Elementary School District		32,000		3.48		1,115 "
San Bernardino City Ele- mentary School District		3,645,000		0.076		2,777 "
Lake Arrowhead Elementary School District		26,000		32.94		8,564 "
Victor Valley Union High School		3,680,000		0.036		1,310 "
San Bernardino High School		9,915,000		0.059		5,880 "
Rim of the World Unified School District		2,755,000		64.98		1,790,119 "
Victor Valley Junior College		500,000		0.36		178 "
San Bernardino Joint Union Junior College		<u>220,000</u>		<u>6.32</u>		<u>13,904</u> "
Total		<u>30,184,400</u>				<u>2,302,943</u>

C. Summary of Full Faith and Credit Debt of the Water Agency and Other Political Entities

Type of debt :	As of June 30th				
	1959	1960	1961	1962	1963
1. Net bonded debt	\$ -	\$ -	\$ -	\$ -	\$ -
2. Net floating debt	-	-	-	-	36,000
3. Overlapping etc., debt	<u>1,463,750</u>	<u>1,659,774</u>	<u>1,578,300</u>	<u>1,495,673</u>	<u>2,302,943</u>
4. Total debt	<u>\$1,463,750</u>	<u>\$1,659,774</u>	<u>\$1,578,300</u>	<u>\$1,495,673</u>	<u>\$2,338,943</u>

D. Default Record. There has been no default in the payment of principal or interest during the past 20 years, either by the water agency or by any overlapping, coterminous, or underlying taxing district.

E. Assessed Valuations of Property in the Crestline-Lake Arrowhead Water Agency

1. Type of property:	Valuation (\$000)				
	1959-60	1960-61	1961-62	1962-63	1963-64
Secured property	\$11,309,893	\$12,217,242	\$13,438,032	\$15,116,680	\$16,713,152
Unsecured property	1,170,779	1,257,478	1,351,671	1,448,443	1,622,755
Utilities	<u>2,025,328</u>	<u>2,111,280</u>	<u>2,240,297</u>	<u>2,358,877</u>	<u>2,514,093</u>
Total assessed value	<u>\$14,506,000</u>	<u>\$15,586,000</u>	<u>\$17,030,000</u>	<u>\$18,924,000</u>	<u>\$20,850,000</u>

2. Assessment Ratio (proportion of market value): State Board of Equalization estimates of the District's assessment ratio are shown below for the years 1961-62, 1962-63, and 1963-64. Assessment ratios for 1959-60 and 1960-61 were estimated by using the mean of the following three years. Note that these ratios do not apply to public utilities, which are assumed to be assessed at 45 percent of market value.

1959-60 - 21.4%

1960-61 - 21.4%

1961-62 - 21.1%

1962-63 - 21.8%

1963-64 - 21.3%

3. Estimated Market Value of Property in the District

1959-60 - \$62,821,626

1960-61 - 67,657,719

1961-62 - 75,071,814

1962-63 - 81,228,752

1963-64 - 91,670,948

4. Important Tax Exempt Property Within the Agency

The most important parcel of tax exempt property within the Agency is the forest land owned by the United States Government which extends throughout the Agency's area. The forest land encompasses 28,500 acres of land within the boundaries of the Crestline-Lake Arrowhead Water Agency.

5. Concentrations of Valuable Property Just Outside the Area

The Crestline-Lake Arrowhead Water Agency area surrounds the Arrowhead excluded area on three sides. The excluded area contains substantial amounts of urban development oriented to Lake Arrowhead which is entirely

5. Concentrations of Valuable Property Just Outside the Area (cont'd)

within the excluded area. The City of San Bernardino and its associated urban and industrial areas extends within 10 miles south of the water agency's boundaries.

6. Ten Largest Taxpayers in the Area

A cursory examination of property records has revealed that the ten largest taxpayers within the Agency's area probably do not contribute significant portions of the total taxes collected in the area.

F. Property Tax Rates on Property in the Crestline-Lake Arrowhead Water Agency Area

1. Tax rate components :	Weighted average tax rates in dollars per \$100 assessed valuation				
	: 1959-60	: 1960-61	: 1961-62	: 1962-63	: 1963-64
County rate	\$1.78	\$1.80	\$1.80	\$1.97	\$1.93
School districts	4.53	4.33	4.25	4.38	4.23
Water districts <sup>a</sup>	0.25	0.25	0.25	0.40	0.39
Special districts <sup>b</sup>	1.03	0.98	1.00	0.93	1.02
Crestline-Lake Arrowhead Water Agency	-	-	-	-	0.42
Total	<u>\$7.59</u>	<u>\$7.36</u>	<u>\$7.30</u>	<u>\$7.68</u>	<u>\$7.99</u>

a. Excludes tax rates for Crestline-Lake Arrowhead Water Agency which are shown below.

b. Flood control and sanitation.

2. Assessment Roll. Taxes for all districts are levied from the same assessment roll.



3. Legal Limits on Tax Rates (in dollars per \$100 assessed valuation)

a. Community services districts	\$1.00	(Plus tax for bonds and other special assessments)
b. County library	0.30	
c. Flood control district	0.15	(Plus taxes for bonds and other special assessments. No limit for drainage improvement)
d. Crestline-Lake Arrowhead Water Agency	1.00	
e. Public cemetery districts	0.20	
f. Sanitation districts	0.60	(Plus tax for bonds and other special assessments)
g. School districts	2.00	(Through junior college. Bonded debt subject to additional rates. Increased rates may be allowed under provisions of California Education Code, Sec. 20803.)

4. Taxes by Classification of Property

Tax rates for nearly all districts in the Crestline-Lake Arrowhead Water Agency are levied against all property valuations, i.e., land, improvement, and personal property. Tax rates for some special districts such as the Soil Conservation District and Water Conservation District are levied only against land, while the County Sanitation District levies taxes on both land and improvements.

G. Record of Tax Collections on Property in the Crestline-Lake Arrowhead Water Agency

1. Fiscal year	:	:	Cash collections		Uncollected at end	
	:	:	in year of levy		of fiscal year	
	:	:	Amount	%	Amount	%
1962-63	\$1,453,363	\$1,386,508	95.4	\$66,855	4.6	
1961-62	1,243,190	1,189,733	95.7	55,457	4.3	
1960-61	1,147,130	1,096,656	95.6	50,474	4.4	
1959-60	1,101,005	1,055,864	95.9	45,141	4.1	
1958-59	936,771	894,616	95.5	42,154	4.5	

2. When Taxes are Due

- Due dates: One half of tax levy due each on November 1 and February 1.
- When delinquent: December 10 and April 10 following due date.
- Penalties: Penalties attach as of the delinquent date, to the extent of six percent of each delinquent installment. No discounts are allowed for prompt payment.

3. Tax Sales. Tax sales of delinquent property are regularly held by the County.

4. Estimated Tax Delinquency. Each year the county tax collector estimates a tax payment delinquency which is used for budget purposes and for computing necessary tax levies and rates for the ensuing year. The estimate is generally between five to ten percent of the total levy.

5. Collection of Taxes. The water agency does not collect its own taxes or the taxes of other taxing districts. The county tax collector collects all taxes.

H. Receipts and Disbursements of the Crestline-Lake Arrowhead Water Agency

Income and Expense	:	Period beginning July 1, 1963
	:	and ending June 30, 1964

Receipts

Tax collections	\$76,706.48
Interest	<u>14.43</u>
Total Receipts	<u>\$76,720.91</u>

Disbursements

Salaries and wages	\$14,017.50
Operating expenses	36,893.54
Interest on debt	<u>1,161.04</u>
Total expense	<u>\$52,072.08</u>
Cash, end of period	<u>\$24,648.83</u>

- I. Sinking Fund Operations. There are no sinking funds being operated by the Agency at the present time.
- J. Future Debt Service Requirements. The Agency has signed a contract for water delivery from the State Water Project committing the Agency to repay the State for its proportionate share of the costs associated with water deliveries from the project. These costs are described and tabulated in Chapter IV.
- K. Management and Services
1. Fiscal Policies. The Agency has been in existence such a short time that no valid judgment can be made of its fiscal policies.
  2. General Character and Efficiency of the Management. The management has been effective in its effort to establish the Agency in its negotiations with the State for a water service contract.

K. Management and Services (cont'd)

3. Services Performed by the Agency. Thus far, the Agency has acted only as a disseminator of information and as a negotiator for a water service contract with the State. Upon receiving imported water, it will act as a wholesaler and distributor of water to local water agencies and districts.

L. Economic Background

1. Land Area. The Agency encompasses an area of 45,800 acres of land.
2. Population

1950	3,400
1960	5,800

3. Employment<sup>a</sup>

Industry group	: Number employed April 1960
Mining	2
Construction	322
Manufacturing	92
Trans. Comm. and Util.	108
Wholesale and Retail Trade	465
Services	476
Government	112
All other and not reported	<u>303</u>
Total	<u><u>1,880</u></u>

a. Source: U. S. Census, 1960. Data represent jobs held by residents of Crestline-Lake Arrowhead Water Agency and Lake Arrowhead excluded area.

The above figure was obtained from a report of U. S. Census Bureau, 1960. The population figure in this report is 4,345 and considerable less than that of the figure presented by the Department in this report. The Department's estimate is based on known figures of vote registration and pupil enrollment coupled with estimates of nonregistered voters, nonschool minors, and others, this value being 6,700 for 1960. Thus, the employment figure presented above can only be used as a representative figure of the community's various occupations for the purposes of this report.

#### 4. Recreation and Trade

The economy of the small communities in the Agency is largely dependent on the recreational attraction of the area. The recreation centers have attracted a new and growing population along with a greater tourist trade, giving retail trade a continuing growth pattern.

#### 5. Transportation

Highway 18 traverses the area, going generally in an east-west direction, giving the area its only really accessible route. Big Bear Transit Company provides bus service to the area from San Bernardino.

#### 6. Natural Resources

There are no mineral products of major importance being exploited in the area at the present time and lumbering activity is minor.

M. Financial Data for the Crestline-Lake Arrowhead Water Agency Area

1. General Data

a. Population

(1) 1950	3,400
(2) 1960	5,800
(3) 1963	6,550

b. Assessed valuation

(1) Amount, 1962-63	\$18,924,000
(2) Basis of assessment	21.8% secured and unsecured 45.0% utilities
(3) Estimated full valuation	\$81,229,000

c. Bonded debt, as of June 30, 1963 \$ 2,303,000

d. Tax levies, 1962-63 \$ 1,453,000

2. Per Capita Data, 1963

a. Assessed valuation  $\frac{\$18,924,000}{6550} = \$2,889$

b. Estimated full valuation  $\frac{\$81,229,000}{6550} = \$12,401$

c. Bonded debt  $\frac{\$ 2,303,000}{6550} = \$ 352$

d. Tax levies  $\frac{\$ 1,453,000}{6550} = \$ 222$

3. Ratios

a. Tax supported bonded debt in 1963 as a percentage of:

(1) Assessed valuation  $\frac{\$ 2,303,000}{\$18,924,000} = 12.2\%$

(2) Estimated full valuation  $\frac{\$ 2,303,000}{\$81,229,000} = 2.8\%$

(3) Tax levies  $\frac{\$ 2,303,000}{\$ 1,453,000} = 158.5\%$



3. Ratios (cont'd)

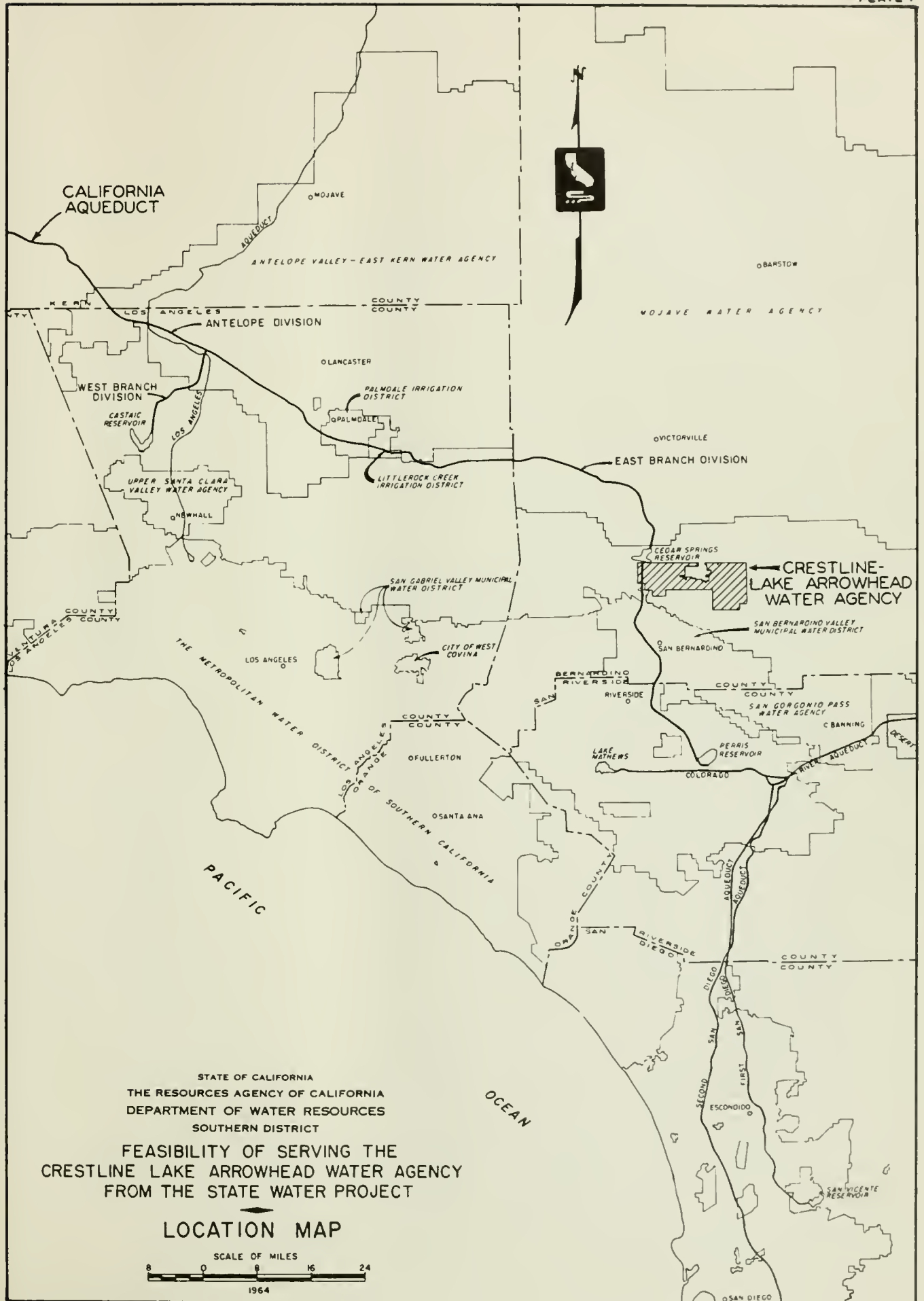
b. Percentage increase in:

$$(1) \text{ Population, 1958 to 1963 } \frac{6550-5320}{5320} = 23.1\%$$

$$(2) \text{ Assessed valuation 1957-58 } \frac{\$18,924,840 - \$12,900,000}{\$12,900,000} = 46.6\%$$

$$(3) \text{ Bonded debt 1958-1963 } \frac{\$2,302,943 - \$824,343}{\$824,343} = 179.4\%$$

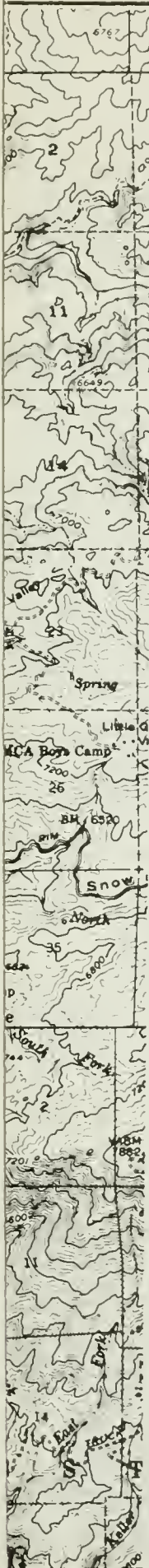
$$(4) \text{ Tax levies 1958-59 to 1962-63 } \frac{\$1,453,363 - \$936,771}{\$936,771} = 55.1\%$$







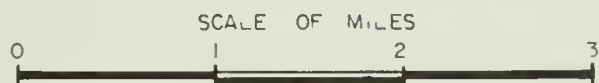




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 FROM THE STATE WATER PROJECT

AGENCY BOUNDARIES  
 AND PHYSICAL FEATURES



1964

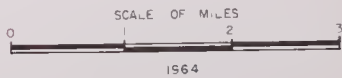




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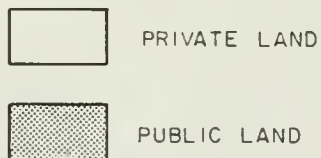
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LOCATION OF  
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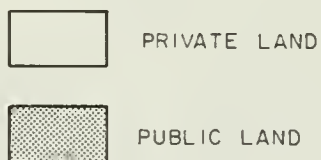
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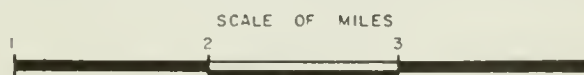
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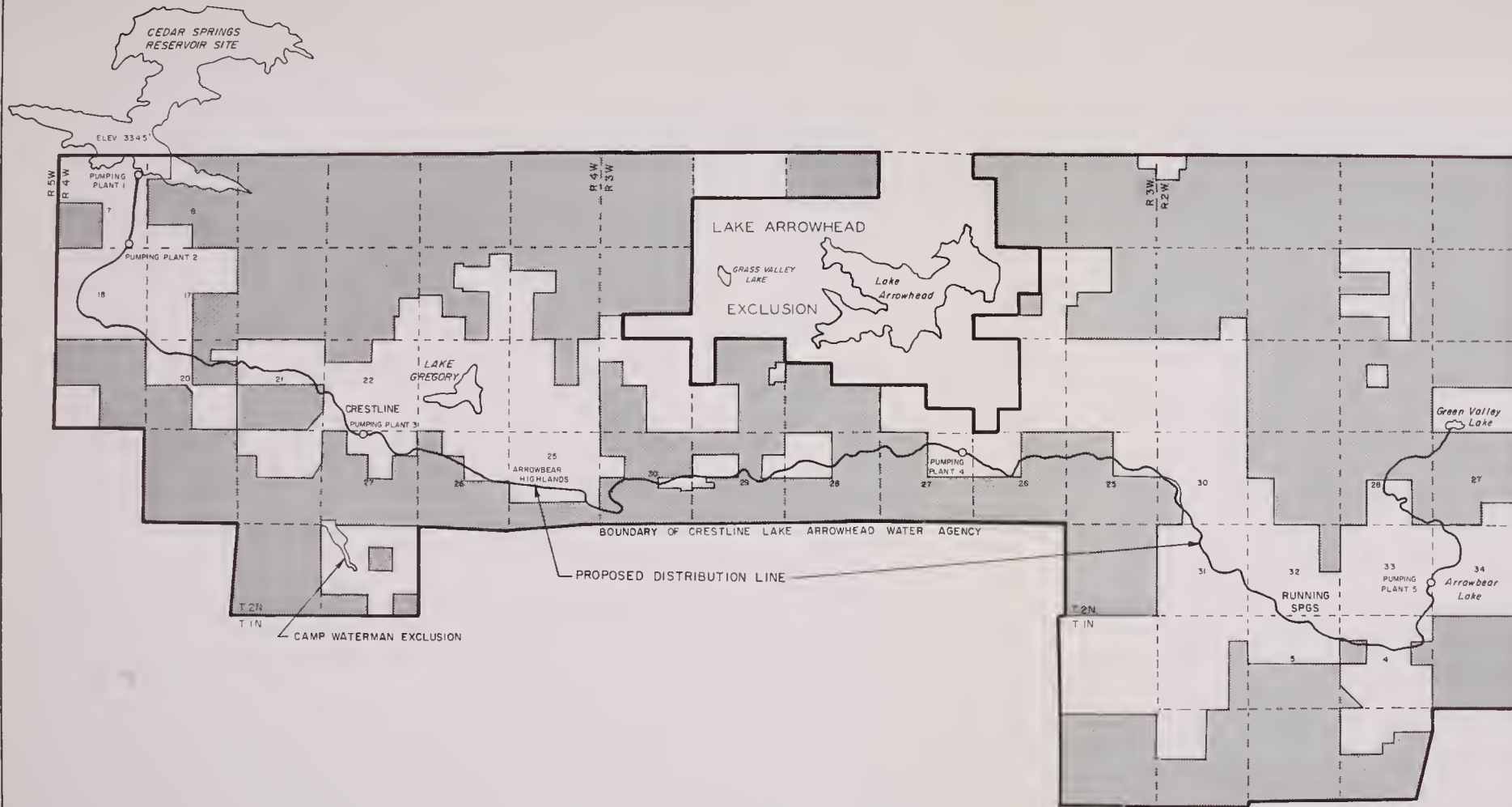
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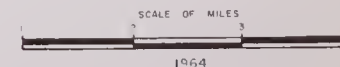


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- PRIVATE LAND
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